

Listing of Claims

This listing of claims will replace all prior versions, and listings, of the claims in this application.

Claim 1 (currently amended): An apparatus for acquiring a waveform, comprising:

means for performing a Fourier transform on a sampled waveform;

means for providing a power spectrum of the Fourier transformed waveform;

means for estimating a signal-to-noise ratio based upon the power spectrum of said power spectrum providing means;

means for determining whether the signal-to-noise ~~ratio~~ ratio is less than a threshold value;

means for accumulating the power spectrum of said power spectrum providing means when said determining means determines that the signal-to-noise ratio is not less than the threshold value; and

means for estimating a symbol rate of the waveform based upon a power spectrum accumulated by said accumulating means.

Claim 2 (original): An apparatus as claimed in claim 1, further comprising means for setting a sampling rate for sampling the waveform based upon the symbol rate estimated by said symbol rate estimating means.

Claim 3 (currently amended): An apparatus as claimed in claim 1, further comprising means for estimating the Doppler shift of the waveform based upon a power spectrum accumulated by said accumulating means.

Claim 4 (currently amended): An apparatus as claimed in claim 1, further comprising means for estimating the Doppler shift of the waveform based upon a power spectrum accumulated by said accumulating means, and means for tuning a

center frequency of the waveform based upon the Doppler shift estimated by said Doppler shift estimating means.

Claim 5 (currently amended): An apparatus as claimed in claim 1, further comprising means for estimating the Doppler shift of the waveform based upon a power spectrum accumulated by said accumulating means, and means for tuning a center frequency of the waveform based upon the Doppler shift estimated by said Doppler shift estimating means wherein the waveform is centered at 0 Hz.

Claim 6 (original): An apparatus as claimed in claim 1, wherein the waveform is a continuous-phase modulation waveform.

Claim 7 (original): An apparatus as claimed in claim 1, wherein the waveform is compliant with a MIL-STD-188-181B standard.

Claim 8 (original): An apparatus of determining the start-of-message of a waveform, comprising:

- means for normalizing samples of a sampled waveform;

- means for correlating the normalized samples with known start-of-message samples to provide a correlation output;

- means for storing a magnitude value of the correlation output;

- means for adjusting the magnitude value of the correlation output to reduce an effect of a sync pattern of the waveform on the magnitude value of the correlation output;

- means for determining whether the adjusted magnitude value of the correlation output exceeds a threshold value; and

- means for detecting a correlation peak wherein the start-of-message of the waveform is determined.

Claim 9 (original): An apparatus as claimed in claim 8, said correlating means correlating additional samples to assure that said correlation peak detecting means detects a proper peak.

Claim 10 (original): An apparatus as claimed in claim 8, further comprising means for computing a carrier phase of the waveform at the start-of-message determined by said correlation peak detecting means.

Claim 11 (original): An apparatus as claimed in claim 8, wherein the waveform is a continuous-phase modulation waveform.

Claim 12 (original): An apparatus as claimed in claim 8, wherein the waveform is compliant with a MIL-STD-188-181B standard.

Claim 13 (currently amended): An apparatus for acquiring a waveform, comprising:

- means for searching for a preamble of the waveform;
- means for detecting the symbol rate of the waveform;
- means for estimating the Doppler shift of the waveform;
- means for detecting the start-of-message of the waveform; and
- means for estimating an initial carrier phase of the waveform.

Claim 14 (original): An apparatus as claimed in claim 13, further comprising means for detecting the header of the waveform, and means for decoding the header of the waveform.

Claim 15 (original): An apparatus as claimed in claim 13, said means for searching for a preamble including a sample buffer structure, a fast Fourier transform processor structure, a power spectrum detector structure, an accumulator structure, and a spectrum analyzer structure.

Claim 16 (original): An apparatus as claimed in claim 13, said means for detecting the symbol rate including a sample buffer structure, a fast Fourier transform processor structure, a power spectrum detector structure, an accumulator structure, and a spectrum analyzer structure.

Claim 17 (currently amended): An apparatus as claimed in claim 13, said means for estimating the Doppler shift including a sample buffer structure, a fast Fourier transform processor structure, a power spectrum detector structure, an accumulator structure, and a spectrum analyzer structure.

Claim 18 (original): An apparatus as claimed in claim 13, said means for estimating the start-of-message including a sample buffer structure, a correlator structure, and a decision logic structure.

Claim 19 (original): An apparatus as claimed in claim 13, said means for estimating an initial carrier phase including a sample buffer structure, a correlator structure, a decision logic structure, and an arctangent calculator structure.

Claim 20 (original): An apparatus as claimed in claim 13, wherein the waveform is a continuous-phase modulation waveform.